

WHAT IS CLAIMED IS:

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1. An image forming apparatus, comprising:
one or more processing units wherein each
processing unit processes data for forming an image;
a control unit that communicates with each
10 of said processing units directly, or indirectly
through another one or more of said processing units;
an update program acquiring unit that
acquires an update program for updating programs of
said processing units and a program of said control
15 unit; and
a program updating unit that updates the
programs of said processing units in the order of the
number of said other one or more processing units
through which said control unit communicates with
20 each of said processing units.

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2. The image forming apparatus as claimed

in claim 1, wherein said program updating unit
determines the order in which the programs of said
processing units are updated thereby to create update
order information based on the update program
5 acquired by said update program acquiring unit.

10 3. The image forming apparatus as claimed
in claim 2, wherein said program updating unit
correlates the order in which the programs of said
processing units are updated with names of the
programs.

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4. The image forming apparatus as claimed
20 in claim 2, wherein the update order information
includes information indicating update status.

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5. The image forming apparatus as claimed
in claim 1, wherein

said control unit has one or more
application programs related to image forming
5 processing; and

said program updating unit can update the
application programs individually.

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6. The image forming apparatus as claimed
in claim 1, wherein

one of said processing units is a display
15 unit that displays information of the image forming
apparatus; and

said program updating unit updates the
program of the display unit after the programs of
other processing units and the program of said
20 control unit are updated.

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7. The image forming apparatus as claimed

in claim 1, further comprising a communication unit
for connecting the image forming apparatus to a
network; wherein

5 said update program acquiring unit acquires
the update program using said communication unit.

10 8. The image forming apparatus as claimed
in claim 7, wherein said control unit reboots updated
ones of said processing units in the order in which
said processing units are updated.

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 9. The image forming apparatus as claimed
in claim 7, wherein said control unit reboots updated
20 ones of said processing units after all to-be-updated
programs have been updated.

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10. The image forming apparatus as claimed
in claim 7, wherein said control unit, when a primary
program thereof is to be updated, executes a
secondary program stored in a second memory region
5 other than a first memory region in which the primary
program is stored.

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11. The image forming apparatus as claimed
in claim 10, wherein said control unit, when the
primary program thereof is being updated, executes
the secondary program stored in the second memory
15 region of a volatile memory.

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12. The image forming apparatus as claimed
in claim 11, the secondary program is smaller in size
than the primary program.

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13. The image forming apparatus as claimed
in claim 7, wherein said control unit, when updating
the program of one of said processing units, causes
the one of said processing units to operate in a
5 restricted mode.

10 14. The image forming apparatus as claimed
in claim 7, wherein said control unit, when
communication with said processing unit is
disconnected, reboots itself.

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15. The image forming apparatus as claimed
in claim 7, wherein said control unit reboots itself
20 in a predetermined time after the last one of updated
processing units is rebooted.

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16. The image forming apparatus as claimed
in claim 7, wherein said control unit stores
information indicating a state of the image forming
apparatus in a non-volatile storage unit before
5 rebooting itself, and restores the image forming
apparatus to the stored state after rebooting itself.

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17. The image forming apparatus as claimed
in claim 16, wherein the state of the image forming
apparatus is a state in which the power consumption
of the image forming apparatus is reduced.

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18. The image forming apparatus as claimed
20 in claim 17, further comprising a display unit that
displays information related to the image forming
apparatus;

wherein the state of the image forming
apparatus is information displayed on the display
25 unit.

19. The image forming apparatus as claimed
in claim 18, wherein said display unit displays the
progress of the update of the programs.

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20. The image forming apparatus as claimed
10 in claim 19, wherein said display unit, if the image
forming apparatus is set at the state in which the
power consumption thereof is reduced, does not
display the progress of the update of the programs.

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21. The image forming apparatus as claimed
in claim 7, wherein said program updating unit
20 creates an update management table including
information related to the acquired update program.

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22. The image forming apparatus as claimed
in claim 21, wherein the update management table
includes module IDs that specify the acquired update
program.

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23. The image forming apparatus as claimed
10 in claim 7, wherein said processing units include
processing units that said control unit can directly
reboot and processing units that automatically reboot
themselves in response to a request from said control
unit.

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24. The image forming apparatus as claimed
20 in claim 7, further comprising:

an update result information creating unit
that creates update result information indicating
results of the update of the programs; and

an update result outputting unit that
25 outputs the update results based on the update result

information.

25. The image forming apparatus as claimed
in claim 24, wherein said update result outputting
5 unit either prints the update results, transmits an
e-mail message indicating the update results, or
displays a screen indicating the update results.

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26. The image forming apparatus as claimed
in claim 24, wherein the update result information
includes at least one of the version of a program
15 before update, the version of the program after
update, the date and time the program is updated, and
whether the program is updated successfully.

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27. The image forming apparatus as claimed
in claim 24, wherein said update result information
creating unit stores the update result information in
25 a non-volatile storage unit.

28. The image forming apparatus as claimed
in claim 27, wherein said update result information
creating unit accumulates the update result
5 information.

10 29. The image forming apparatus as claimed
in claim 27, wherein
said control unit restarts the image
forming apparatus after said update result
information creating unit stores the update result
15 information in the non-volatile storage unit; and
said update result outputting unit outputs
the update results after the image forming apparatus
is restarted.

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30. A method of updating a plurality of
programs for an image forming apparatus, comprising
25 the steps of:

acquiring an update program for updating
the programs; and

updating each of the programs in the order
of the number of processing units through which a
5 control unit and the processing unit in which each
program is installed communicate with each other.

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31. The method as claimed in claim 30,
further comprising the step of:

rebooting the processing unit in which the
program is updated.

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32. The method as claimed in claim 31,
20 wherein the processing unit in which the program is
updated is rebooted in the order in which the
programs are updated.

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33. The method as claimed in claim 30,
further comprising the step of:

creating update result information
5 indicating update results of the programs; and
outputting the update results of the
programs based on the update result information.

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34. The method as claimed in claim 33,
wherein, in the step of outputting the update results,
the update results are either printed, transmitted as
15 an e-mail message, or displayed on a display unit.

20 35. The method as claimed in claim 33,
wherein the update result information includes at
least one of the version before the update, the
version after the update, the date and time of the
update, and whether the program has been updated
25 successfully.

36. The method as claimed in claim 35,
wherein, in the step of creating the update result
information, the update result information is added
5 to the update result information of the past.

10 37. The method as claimed in claim 33,
further comprising the step of restarting the image
forming apparatus after the step of creating the
update result information.

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38. The method as claimed in claim 37,
wherein, in the step of creating the update result
20 information, the update result information is stored
in a non-volatile storage unit before the image
forming apparatus is restarted.